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Jin-Ho Park

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5097

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EXAMINER

PIZIALI, JEFFREY J

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/884,487	<b>Applicant(s)</b> PARK, JIN-HO	
	<b>Examiner</b> Jeff Piziali	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/130,005.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Reopening Prosecution***

1. In view of the Appeal Brief filed on 18 December 2007, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Bipin Shalwala/

Supervisory Patent Examiner, Art Unit 2629.

***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/130,005, filed on 6 August 1998.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:
- The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claims 10-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
5. Pertaining to claim 10, the specification requires, "*The multiple output DC/DC voltage converter comprises a transformer having a primary coil applied with the input DC voltage and at least two more secondary coils*" (see page 5, line 10). The instant claim recites a single secondary coil (see line 2). Such subject matter was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention with a single secondary coil.

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6. Pertaining to claim 10, the specification requires, the *"switching operation causes the current flowing through the primary coil T61 of the transformer to change. Accordingly, the AC voltage is generated from the DC input voltage  $V_{in}$ . This AC voltage is rectified by the diode D63, charged in the capacitor C63, and accordingly the constant voltage is obtained thereby. At this time, the magnitude of the voltage charged in the capacitor C63 is determined by the on/off duty ratio of the transistor Q61"* (see page 5, line 10). The instant claim recites *"a first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the primary coil and a second DC output voltage of the multiple DC output voltage DC/DC converter is generated from the secondary coil"* (see lines 6-9). Such subject matter was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention, wherein the primary and secondary coils generate DC output voltages. Rectifiers are required to generate DC output voltages.

7. Pertaining to claim 14, the specification requires, *"The multiple output DC/DC voltage converter comprises a transformer having a primary coil applied with the input DC voltage and at least two more secondary coils"* (see page 5, line 10). The instant claim recites a single secondary coil (see line 2). Such subject matter was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention with a single secondary coil.

8. Pertaining to claim 14, the specification requires, the *"switching operation causes the current flowing through the primary coil T61 of the transformer to change. Accordingly, the AC*

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*voltage is generated from the DC input voltage  $V_{in}$ . This AC voltage is rectified by the diode D63, charged in the capacitor C63, and accordingly the constant voltage is obtained thereby. At this time, the magnitude of the voltage charged in the capacitor C63 is determined by the on/off duty ratio of the transistor Q61"* (see page 5, line 10). The instant claim recites "*a first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the inductor and a second DC output voltage of the multiple DC output voltage DC/DC converter is generated from the secondary coil*" (see lines 6-10). Such subject matter was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention, wherein the inductor and secondary coils generate DC output voltages. Rectifiers are required to generate DC output voltages.

9. Remaining claims 11-13 and 15-18 are rejected under 35 U.S.C. 112, first paragraph, as being dependent upon rejected base claims.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 10-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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12. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

One omitted element is DC/DC conversion. The preamble of the claim recites, "*a multiple DC output voltage DC/DC converter comprising...*" (see line 1). However, although DC output voltage(s) are claimed (in lines 6-9); no DC input voltages are anywhere found in the claim; and no actual voltage conversion is anywhere recited by the present claim language. It would be unclear to one having ordinary skill in the art whether the claimed invention actual inputs and/or converts anything; or rather whether the claimed "*multiple DC output voltage DC/DC converter*" simply outputs voltage(s). In fact, not a single pending claim (independent or dependent) recites the step of "*converting*" anything. Therefore it would be unclear to an artisan whether any actual conversion circuitry is essential to the claims.

13. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship is found within the claim language, "*a transformer including a primary coil and a secondary coil that are coupled to one another*" (see line 2). It would be unclear to one having ordinary skill in the art whether the DC/DC converter is coupled to the transformer; whether the transformer is coupled to the primary coil; whether the transformer is coupled to the secondary coil; and/or whether the primary coil is coupled to the secondary coil.

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An omitted structural cooperative relationship is found within the claim language, "*a switch that is connected to the primary coil and that controls current switching therein*" (see line 4). It would be unclear to one having ordinary skill in the art whether the converter, the transformer, the secondary coil, the switch, and/or the primary coil controls current switching.

Additionally, it would be unclear to an artisan whether the subject of "*therein*" (in line 5) is the converter, transformer, primary coil, secondary coil, and/or the switch.

An omitted structural cooperative relationship is found within the claim language, "*a first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the primary coil and a second DC output voltage*" (see line 8). It would be unclear to one having ordinary skill in the art whether the claimed first DC output voltage is at least partially generated from the second DC output voltage.

14. Claims 11-13 and 15-18 are each rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship is found within the claim language, "*A converter*" (see line 1 of each respective claim 11-13 and 15-18). It would be unclear to one having ordinary skill in the art whether each "*converter*" claimed by these dependent claims is identical to the "*multiple DC output voltage DC/DC converter*" (found in claim 1, line 1); or rather whether each dependent claim is referring to a separate and distinct "*converter*."



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15. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship is found within the claim language, "*the first rectifier is connected to the primary coil to generate the first DC output voltage of the multiple DC output voltage DC/DC converter therefrom*" (see line 5). It would be unclear to an artisan whether the subject of "*therefrom*" is the converter, transformer, primary coil, secondary coil, switch, first DC output voltage, second DC output voltage, first rectifier, second rectifier, and/or the input voltage.

An omitted structural cooperative relationship is found within the claim language, "*the second rectifier is connected to the secondary coil to generate the second DC output voltage of the multiple DC output voltage DC/DC converter therefrom*" (see line 8). It would be unclear to an artisan whether the subject of "*therefrom*" is the converter, transformer, primary coil, secondary coil, switch, first DC output voltage, second DC output voltage, first rectifier, second rectifier, and/or the input voltage.

Additionally, it would be unclear to an artisan whether the "first DC output voltage" is generated from the primary coil (in claim 10, line 7) or the "first rectifier" (in claim 11, line 4). Likewise, it would be unclear to an artisan whether the "second DC output voltage" is generated from the secondary coil (in claim 10, line 8) or the "second rectifier" (in claim 11, line 6).

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16. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

One omitted element is DC/DC conversion. The preamble of the claim recites, "*a multiple DC output voltage DC/DC converter comprising...*" (see line 1). However, although DC output voltage(s) are claimed (in lines 6-9); no DC input voltages are anywhere found in the claim; and indeed no actual voltage conversion is anywhere recited by the present claim language. It would be unclear to one having ordinary skill in the art whether the claimed invention actual inputs and/or converts anything; or rather whether the claimed "*multiple DC output voltage DC/DC converter*" simply outputs voltage(s). In fact, not a single pending claim (independent or dependent) recites the step of "*converting*" anything. Therefore it would be unclear to an artisan whether any actual conversion circuitry is essential to the claims.

17. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship is found within the claim language, "*a transformer including a primary coil and a secondary coil that are coupled to one another*" (see line 2). It would be unclear to one having ordinary skill in the art whether the DC/DC converter is coupled to the transformer; whether the transformer is coupled to the primary coil; whether the transformer is coupled to the secondary coil; and/or whether the primary coil is coupled to the secondary coil.

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An omitted structural cooperative relationship is found within the claim language, "*a switch that is connected to the primary coil and that controls current switching therein*" (see line 4). It would be unclear to one having ordinary skill in the art whether the converter, the transformer, the secondary coil, the switch, and/or the primary coil controls current switching.

Additionally, it would be unclear to an artisan whether the subject of "*therein*" (in line 5) is the converter, transformer, primary coil, secondary coil, and/or the switch.

An omitted structural cooperative relationship is found within the claim language, "*a first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the inductor and a second DC output voltage*" (see line 8). It would be unclear to one having ordinary skill in the art whether the claimed first DC output voltage is at least partially generated from the second DC output voltage.

18. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship is found within the claim language, "*the first rectifier is connected to the inductor to generate the first DC output voltage of the multiple DC output voltage DC/DC converter therefrom*" (see line 5). It would be unclear to an artisan whether the subject of "*therefrom*" is the converter, transformer, primary coil, secondary coil, inductor, switch, first DC output voltage, second DC output voltage, first rectifier, second rectifier, and/or the input voltage.

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An omitted structural cooperative relationship is found within the claim language, "*the second rectifier is connected to the secondary coil to generate the second DC output voltage of the multiple DC output voltage DC/DC converter therefrom*" (see line 8). It would be unclear to an artisan whether the subject of "*therefrom*" is the converter, transformer, primary coil, secondary coil, inductor, switch, first DC output voltage, second DC output voltage, first rectifier, second rectifier, and/or the input voltage.

Additionally, it would be unclear to an artisan whether the "first DC output voltage" is generated from the inductor (in claim 14, line 8) or the "first rectifier" (in claim 15, line 4). Likewise, it would be unclear to an artisan whether the "second DC output voltage" is generated from the secondary coil (in claim 14, line 10) or the "second rectifier" (in claim 15, line 6).

### ***Double Patenting***

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 10-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of **U.S. Patent No. 6,275,208**. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Presently pending claims, and **U.S. Patent No. 6,275,208**'s claims recite such subject matter as *a multiple DC output voltage DC/DC converter comprising: a transformer including a primary coil and a secondary coil that are coupled to one another by magnetic induction; and a switch that is connected to the primary coil and that controls current switching therein; wherein a first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the primary coil and a second DC output voltage of the multiple DC output voltage DC/DC converter is generated from the secondary coil.*

The instant invention does not explicitly recite, for instance, the use of *a liquid crystal display panel with the DC/DC converter*; as is claimed by **U.S. Patent No. 6,275,208**. However, presently pending claims are a broader version of **U.S. Patent No. 6,275,208**'s claims. **U.S. Patent No. 6,275,208**'s claims include all the limitations found in presently pending claims. Thus, presently pending claims cover all the subject of **U.S. Patent No. 6,275,208**'s claims.

### ***Claim Rejections - 35 USC § 102***

21. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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22. Claims 10-18 are rejected under 35 U.S.C. 102(b) as being anticipated by *Clark et al (US 4,323,957 A)*.

Regarding claim 10, Clark discloses a multiple DC output voltage DC/DC converter [Fig. 1; 10] comprising: a transformer [Fig. 1; 16] including a primary coil [Fig. 1; 16a] and a secondary coil [Fig. 1; 16b] that are coupled to one another by magnetic induction (e.g., see Column 1, Line 59 - Column 2, Line 6); and a switch [Fig. 1; 24] that is connected to the primary coil and that controls current switching therein (e.g., see Column 2, Lines 27-38); wherein a first DC output voltage [Fig. 1;  $V(t)$ ,  $+V_2$ ] of the multiple DC output voltage DC/DC converter is generated from the primary coil (e.g., see Column 3, Lines 12-44) and a second DC output voltage [Fig. 1;  $+V_3$ ] of the multiple DC output voltage DC/DC converter is generated from the secondary coil (e.g., see Column 2, Lines 7-26).

Regarding claim 11, Clark discloses a first rectifier [Fig. 1; 70] and a second rectifier [Fig. 1; 44 & the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ], wherein the primary coil is connected between an input voltage [Fig. 1;  $+V_1$ ] and the switch (e.g., see Fig. 2; Column 3, Lines 12-44), wherein the first rectifier is connected to the primary coil to generate the first DC output voltage of the multiple DC output voltage DC/DC converter therefrom and wherein the second rectifier is connected to the secondary coil to generate the second DC output voltage of the multiple DC output voltage DC/DC converter therefrom (e.g., see Column 2, Lines 7-26).

Regarding claim 12, Clark discloses the first rectifier comprises a first diode [Fig. 1; 60] and a first capacitor [Fig. 1; 80] (e.g., see Column 3, Lines 12-44) and wherein the second rectifier comprises a second diode [Fig. 1; 44] and a second capacitor [Fig. 1; the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ] (e.g., see Column 2, Lines 7-26).

Regarding claim 13, Clark discloses an inductor [Fig. 1; 20] that is coupled across (i.e., into contact with) the primary coil, wherein the first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the primary coil and from the inductor (e.g., see Column 2, Line 56 - Column 3, Line 11).

Regarding claim 14, Clark discloses a multiple DC output voltage DC/DC converter [Fig. 1; 10] comprising: a transformer [Fig. 1; 16] including a primary coil [Fig. 1; 16a] and a secondary coil [Fig. 1; 16b] that are coupled to one another by magnetic induction (e.g., see Column 1, Line 59 - Column 2, Line 6); an inductor [Fig. 1; 20] that is coupled across (i.e., into contact with) the primary coil (e.g., see Column 2, Line 56 - Column 3, Line 11); and a switch [Fig. 1; 24] that is connected to the inductor and that controls current switching therein (e.g., see Column 2, Lines 27-38); wherein a first DC output voltage [Fig. 1;  $V(t)$ ,  $+V_2$ ] of the multiple DC output voltage DC/DC converter is generated from the inductor (e.g., see Column 3, Lines 12-44) and a second DC output voltage [Fig. 1;  $+V_3$ ] of the multiple DC output voltage DC/DC converter is generated from the secondary coil (e.g., see Column 2, Lines 7-26).

Regarding claim 15, Clark discloses a first rectifier [Fig. 1; 70] and a second rectifier [Fig. 1; 44 & the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ], wherein the inductor is connected between an input voltage [Fig. 1;  $+V_1$ ] and the switch, wherein the first rectifier is connected to the inductor to generate the first DC output voltage of the multiple DC output voltage DC/DC converter therefrom (e.g., see Fig. 2; Column 3, Lines 12-44) and wherein the second rectifier is connected to the secondary coil to generate the second DC output voltage of the multiple DC output voltage DC/DC converter therefrom (e.g., see Column 2, Lines 7-26).

Regarding claim 16, Clark discloses the first rectifier comprises a first diode [Fig. 1; 60] and a first capacitor [Fig. 1; 80] (e.g., see Column 3, Lines 12-44) and wherein the second rectifier comprises a second diode [Fig. 1; 44] and a second capacitor [Fig. 1; the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ] (e.g., see Column 2, Lines 7-26).

Regarding claim 17, Clark discloses an input voltage port [Fig. 1; 12] that is connected to the primary coil to provide a DC input voltage [Fig. 1;  $+V_1$ ] to the primary coil (see Column 1, Line 59 - Column 2, Line 6).

Regarding claim 18, Clark discloses an input voltage port [Fig. 1; 12] that is connected to the primary coil to provide a DC input voltage [Fig. 1;  $+V_1$ ] to the primary coil (see Column 1, Line 59 - Column 2, Line 6).



***Claim Rejections - 35 USC § 103***

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claims 13-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Clark et al (US 4,323,957 A)* in view of *Liu et al (US 5,808,879 A)*.

Regarding claim 13, Clark discloses an inductor [Fig. 1; 20] that is coupled across (i.e., into contact with) the primary coil, wherein the first DC output voltage of the multiple DC output voltage DC/DC converter is generated from the primary coil and from the inductor (e.g., see Column 2, Line 56 - Column 3, Line 11).

Should it be shown that Clark teaches an inductor coupled across the primary coil with insufficient specificity; Liu discloses a multiple DC output voltage DC/DC converter [Fig. 2(a)] comprising: a transformer [Fig. 2(a); T] including a primary coil [Fig. 2(a); N<sub>p</sub>] and a secondary coil [Fig. 2(a); N<sub>s</sub>] that are coupled to one another by magnetic induction (e.g., see Column 3, Lines 19-35); an inductor [Fig. 2(a); L<sub>m</sub>] that is coupled across (i.e., in parallel with) the primary coil; and a switch [Fig. 2(a); Q1] that is connected to the inductor and that controls current switching therein; wherein a DC output voltage [Fig. 2(a); V<sub>o</sub>] of the multiple DC output voltage DC/DC converter is generated from the secondary coil (e.g., see Column 5, Lines 30-65).

Clark and Liu are analogous art, because they are from the shared inventive field of DC-to-DC voltage converters. Therefore, it would have been obvious to one having ordinary skill in

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the art at the time of invention to place Liu's magnetizing inductor in parallel with Clark's primary coil, so as to, for example, reduce voltage stress on the switches, reduce EMI noise and switching losses, obtain for the rectifying diode a low  $di/dt$ , as well as provide zero-voltage-switching (Liu: Column 9, Lines 56-63).

Regarding claim 14, Clark discloses a multiple DC output voltage DC/DC converter [Fig. 1; 10] comprising: a transformer [Fig. 1; 16] including a primary coil [Fig. 1; 16a] and a secondary coil [Fig. 1; 16b] that are coupled to one another by magnetic induction (e.g., see Column 1, Line 59 - Column 2, Line 6); an inductor [Fig. 1; 20] that is coupled across (i.e., into contact with) the primary coil (e.g., see Column 2, Line 56 - Column 3, Line 11); and a switch [Fig. 1; 24] that is connected to the inductor and that controls current switching therein (e.g., see Column 2, Lines 27-38); wherein a first DC output voltage [Fig. 1;  $V(t)$ ,  $+V_2$ ] of the multiple DC output voltage DC/DC converter is generated from the inductor (e.g., see Column 3, Lines 12-44) and a second DC output voltage [Fig. 1;  $+V_3$ ] of the multiple DC output voltage DC/DC converter is generated from the secondary coil (e.g., see Column 2, Lines 7-26).

Should it be shown that Clark teaches an inductor coupled across the primary coil with insufficient specificity; Liu discloses a multiple DC output voltage DC/DC converter [Fig. 2(a)] comprising: a transformer [Fig. 2(a); T] including a primary coil [Fig. 2(a);  $N_p$ ] and a secondary coil [Fig. 2(a);  $N_s$ ] that are coupled to one another by magnetic induction (e.g., see Column 3, Lines 19-35); an inductor [Fig. 2(a);  $L_m$ ] that is coupled across (i.e., in parallel with) the primary coil; and a switch [Fig. 2(a); Q1] that is connected to the inductor and that controls current

switching therein; wherein a DC output voltage [Fig. 2(a);  $V_0$ ] of the multiple DC output voltage DC/DC converter is generated from the secondary coil (e.g., see Column 5, Lines 30-65).

Clark and Liu are analogous art, because they are from the shared inventive field of DC-to-DC voltage converters. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to place Liu's magnetizing inductor in parallel with Clark's primary coil, so as to, for example, reduce voltage stress on the switches, reduce EMI noise and switching losses, obtain for the rectifying diode a low  $di/dt$ , as well as provide zero-voltage-switching (Liu: Column 9, Lines 56-63).

Regarding claim 15, Clark discloses a first rectifier [Fig. 1; 70] and a second rectifier [Fig. 1; 44 & the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ], wherein the inductor is connected between an input voltage [Fig. 1;  $+V_1$ ] and the switch, wherein the first rectifier is connected to the inductor to generate the first DC output voltage of the multiple DC output voltage DC/DC converter therefrom (e.g., see Fig. 2; Column 3, Lines 12-44) and wherein the second rectifier is connected to the secondary coil to generate the second DC output voltage of the multiple DC output voltage DC/DC converter therefrom (e.g., see Column 2, Lines 7-26).

Regarding claim 16, Clark discloses the first rectifier comprises a first diode [Fig. 1; 60] and a first capacitor [Fig. 1; 80] (e.g., see Column 3, Lines 12-44) and wherein the second rectifier comprises a second diode [Fig. 1; 44] and a second capacitor [Fig. 1; the unlabeled capacitor connected between diode 44 and voltage  $+V_3$ ] (e.g., see Column 2, Lines 7-26).

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Regarding claim 18, Clark discloses an input voltage port [Fig. 1; 12] that is connected to the primary coil to provide a DC input voltage [Fig. 1;  $+V_1$ ] to the primary coil (see Column 1, Line 59 - Column 2, Line 6).

### ***Response to Arguments***

25. Applicant's arguments filed 18 December 2007 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 10-18 have been considered but are moot in view of the new grounds of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

### ***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tan (US 5,973,939 A), Ou (US RE36,040 E), Tan et al (US 5,838,558 A), Newlin (US 5,815,381 A), Fraidlin et al (US 5,754,413 A), Telefus et al (US 5,694,304 A), Sato et al (US 5,694,030 A), Divan et al (US 5,659,237 A), Batarseh et al (US 5,636,106 A), Cross (US 5,570,278 A), Sokal (US 5,485,361 A), Ferreira (US 5,448,467 A), Jain (US 5,438,497 A), Jitaru (US 5,126,931 A), and Bassett (US 5,066,900 A) are cited to further evidence the state of the art pertaining to multiple DC output voltage DC/DC converters.

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27. Applicant's amendment (filed 30 August 2002) necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/

Primary Examiner, Art Unit 2629

7 March 2008